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ABSTRACT

After a definition of the term, mobility impairments, and a discussion of the causes and problems associated with amputation, this document covers, under the major section, Paralysis, six handicapping conditions in terms of how each may affect a student's ability to be successful in both a vocational program and a job. Topics under this section cover how many Americans are paralyzed to some degree; what causes paralysis; the different types of paralysis (monoplegia, hemiplegia, triplegia, quadruplegia, tetraplegia, paraplegia); paralysis caused by injury to the spinal cord; employment possibilities of paralyzed individuals; architectural barriers to education and employment; new standards for physical facilities; suggestions for classroom teachers; and the major barrier to educational and employment opportunities. Additional information covers national and state organizations, a resource list for mechanical modifications, travel information for the physically handicapped person, and a resource list for physical facility modifications of an educational institution. A bibliography is appended. (HD)

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IT'S ABOUT TIME PHYSICAL DISABILITIES CAME OUT IN THE OPEN! PART I

--AMPUTATION
--MONOPLEGIA
--HEMIPLEGIA
--TRIPLEGIA
--QUADRUPLEGIA
--PARAPLEGIA

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Written for Vocational Educators by

Kay Davis

A Part of the Project
"Modifying Regular Programs and Developing Curriculum Materials
for the Vocational Education of the Handicapped"

Co-Directors - Lloyd W. Tindall, Roger H. Lambert
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INTRODUCTION

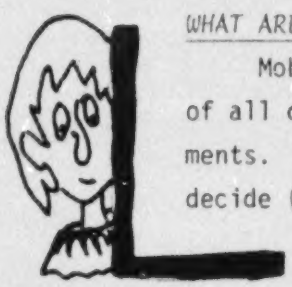
As a vocational educator, you may have a student who has had an amputation, monoplegia, hemiplegia, triplegia, quadruplegia, or paraplegia. These six handicapping conditions will be discussed in terms of how each may affect the student's ability to be successful in both a vocational program and a job.

Since all of these disabilities are a result of an amputation or paralysis, they are represented together in Part I of IT'S ABOUT TIME PHYSICAL DISABILITIES CAME OUT IN THE OPEN! For a more detailed account of instructional techniques and also modifications that can be made in physical facilities for persons with other physical disabilities, refer to Part II and Part III of IT'S ABOUT TIME PHYSICAL DISABILITIES CAME OUT IN THE OPEN!

Persons with physical disabilities need not be excluded from vocational training. It is important, however, for vocational educators to <u>understand</u> some of the limitations that these students may have. Even more important is to <u>accept</u> the student's limitations, just as we accept our own and other students', and adapt classroom facilities and instruction so he or she has an opportunity to gain a vocational skill. *This booklet is dedicated to the creativity within each vocational educator who provides this opportunity.*

MOBILITY IMPAIRMENTS

In the last 20 years, paraplegics and quadraplegics and their wheelchairs have become common. *You, as a teacher or administrator, have more than likely worked with a student who for one reason or another uses a wheelchair, cane or crutches, or some other mechanical device.* In fact, persons with mobility impairments are highly visible. Children in elementary and secondary schools read about Roy Campanella, a quadraplegic who was catcher for the old Brooklyn Dodgers. Both children and adults watch Raymond Burr in Ironside, a television show about a paraplegic chief of police. Recently Dan Inouye, U.S. Senator from Hawaii and an amputee, became nationally known as a result of the televised Watergate Hearings. And George Wallace, now a paraplegic as a result of an attempted assassination, carried on an active United States presidency campaign. Wheelchair basketball teams are gaining recognition as is the Paralympics, an international sports event for paraplegics. The Paralyzed Veterans of America, National Paraplegic Foundation, and the National Society for Crippled Children and Adults are all active organizations promoting research and the rights of all those with mobility impairments.



WHAT ARE MOBILITY IMPAIRMENTS?

Mobility impairments include amputations, paralyses of all differing degrees, and other manipulative impairments. As a result of these disabilities, the person may decide (or may have no choice in deciding) the type of aid he will use in moving about. It may be a wheelchair, crutches or a cane, a prosthesis (artificial limb), or any other type of mechanical device. Each type of aid has its own limitations regardless of the reason for using it (whether it be an amputation, paralysis, multiple sclerosis, spina bifida...).

In discussing the various mobility impairments, first attention will be focused on the reason for the limitation (the paralysis or

amputation) and then the specific considerations that must be taken into account in your vocational program as a result of the use of a wheelchair, prosthesis, crutches or cane, or other manipulative devices. (See the booklets "It's About Time Physical Disabilities Came Out In the Open! Part II and Part III for information on other physical disabilities.)

AMPUTATION

Within every person's lifetime, he/she faces the chance of losing an extremity or a portion of an extremity. *Whether you lose a toe, the heel, a finger, a hand, or entire arm or leg, you have experienced an AMPUTATION.* Obviously, the effects of the amputation, both physical and psychological, depend on the extent of the amputation itself and the person's choice of prosthesis (artificial limb), wheelchair, or crutches for mobility.

What Causes the Amputation?

The amputation more than likely will be the result of TRAUMA, from either an automobile accident, war time casualty, or industrial accident. This is the most common reason for an amputation. The second most common cause is loss of adequate blood supply to an extremity (vascular disorder). Often with the aging process, arteries narrow and the blood supply is reduced, often creating what is called "dry gangrene" and subsequent amputation. Diabetics are also subject to the possibility of amputation as a result of their lack of resistance to infection and its effect on blood vessels, resulting in "wet" gangrene and amputation. Often tumors, malignant or benign, have to be removed, resulting in amputation. A useless limb which has become a liability is not as common a reason for amputation as trauma, vascular disorder, or tumor. However, such an amputation may be necessary, for example, when a person with a useless arm can not control it, thus taking the chance of having it become entangled in car doors, machinery, etc.

After the amputation, whatever the cause, the person faces both physical problems and psychological problems. He faces a life of "greater inconvenience" than before and thus much determination is necessary to adjust one's life where no such adjustment was required before.

A Prosthesis, Crutches, Cane, or Mechanical Device?

The choice of mobility aid rests with the individual and, to a large extent, depends on the limitations of the physical disability. For example, a person who has his hand or part of an arm amputated might decide in favor of a hook rather than a prosthesis because of more efficient use of the hook. A person with both legs amputated could decide upon two artificial limbs or a wheelchair. The type of problems and frustrations encountered will largely depend on the type of mobility aid chosen. In this section on amputation, the physical and emotional problems associated with the use of a prosthesis will be discussed. In the section on paralysis, the problems associated with the use of a wheelchair will be discussed.

Physical Problems: "Real" Pain and "Phantom" Pain

Amputees face the prospect of some degree of pain. In some, the sectioned nerve ending may form a small growth called NEUROMA. This can become the site of intense pain particularly when pressure is applied and particularly when a prosthesis is fitted and is used. In most instances, a local anesthetic can be injected which will relieve the pain.

PHANTOM PAIN, on the other hand, is not relieved by drugs and occurs in the absent extremity. In other words, the person feels pain in the extremity that is no longer there. *If you feel puzzled, you are not alone. Both physicians and psychologists have struggled with this phenomenon for years.*

Right after an operation, almost all patients experience a certain amount of phantom pain. It is usually described as either a deep aching type of pain, a burning sensation, or a sensation that the absent extremity is being twisted into a grotesque position. For example,

an individual who has lost a lower extremity may experience the sensation that his toes are being bent backward on the foot, with severe pain resulting from the abnormal stretch. This is most likely due to irritation of the severed nerve endings which were cut at the time of amputation. However, the persistence of this pain over a period of several months becomes more abnormal as this pain is not felt to be associated with any physical cause. Most investigators believe that this type of phantom pain is based entirely upon the psychological reaction of the person to his changed body image. For this reason, those with severe excruciating phantom pain which persists over a period of many months usually require psychiatric treatment. (Lewis)

Psychological Problems of the Amputee Fitted with a Prosthesis (Fishman)

The fact that the person has satisfactorily completed the operation and has been fitted with a prosthesis would seem to indicate that all is well. However, the prosthesis is not equivalent to the missing extremity. It has no sensation. For example, the artificial hand cannot be used to feel. The person never knows where the prosthesis is in space without looking at it. The prosthesis has to be controlled and consciously moved to perform any function. It does not work automatically with a thought as did the original limb.

What has happpened to the person is permanent. To live in peace with oneself, the person has to accept the amputation and make all of the necessary adjustments so they will become a natural part of his/her life. And there will be many adjustments because there are numerous limitations that were never encountered before.

The following are such limitations and problems faced by the amputee:

--The amputee cannot perform any physical activity which involves the use of the affected limb or limbs without a restriction.

To participate in any activity he/she must either (a) be primarily a spectator, (b) compensate for his loss by the greater use of the remaining extremities, (c) perform the function by utilizing an artificial replacement for the missing member, or (d) a combination of these. But, no matter which course is chosen, the performance of a physical act is

always accompanied by some restriction. Special attention has to be focused on the activity itself.

--*The amputee will always look "different" no matter how effective the prosthesis.* The person must learn to cope with the change in physical appearance, and with his/her perception of self, as well as friends' and family's.

--*The prosthesis makes sounds which seem extremely loud to the amputee, but in reality usually are not noticed by anyone else.* There is noise caused by air escaping around the rim of the socket or in the articulation of the prosthetic knee or ankle. Some amputees are sensitive to the atypical sound of the prosthetic foot hitting the floor. Upper extremity amputees may react to the noise associated with the prosthetic elbow locking in position or the terminal device closing on an object.

--*The prosthesis is uncomfortable.* If it is termed "comfortable," it means only that there is a minimum and tolerable degree of discomfort. For both lower and upper extremity amputees, the body tissues are encased in relatively rigid, impermeable materials (wood or plastic). Therefore, there is more perspiration at the joining of a prosthesis than anywhere else and this creates some discomfort. The lower extremity amputee is using tissues and muscles to bear weight, rather than bone, and this creates some discomfort. Also, the amount of discomfort and pain varies according to the individual, depending on the actual amount of pain and the ability to tolerate pain.

--The amputee must expend more energy than he/she did before in completing any task. He/she has to pay continuous attention to the activation, control and use of the prosthesis. It diverts attention from other concerns. As a result, *the person frequently experiences fatigue more quickly than before the amputation.*

--The amputee always faces the prospect of not effectively using the prosthesis. He/she may fall down when walking or something may drop from his/her hand. *The chance of risk or failure is always present.*

--*The low-socioeconomic amputee faces the likelihood of not being economically self-sufficient.* The professional, managerial and exec-

utive positions which usually pay the highest salary and carry the highest status are dependent upon intellect and personality. An amputee with such a position would more than likely continue to function in that position. However, those who earn their living primarily by the performance of physical duties involving the use of hards and legs, and who do not have intellectual and/or personal resources for training in other fields, suffer a severe economic handicap as a result of amputation. The potential employability of an amputee depends on the extent to which the person is involved in intellectual or manual contributions to society. *This is the point at which vocational-technical programs have the potential for retraining.*

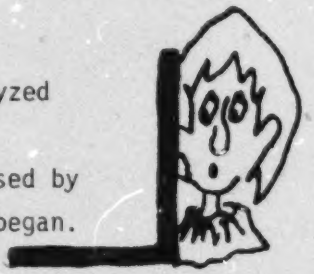
--The status, respect and affection once accorded the individual are threatened by the loss of a limb. The amputee reflects about how others must regard him/her. All he/she has to do is reflect on personal thoughts about other handicapped people before his/her own injury. Previous attitudes toward other disabled people are now directed toward the self. It is true that there are significant movements attempting to change attitudes toward the disabled by teaching that the loss of an extremity does not automatically devalue a person. *However, the loss of status is a very real fear the amputee faces.*

The degree to which a person reacts to each of these limitations and frustrations depends on the individual's perception of his/her disability, personality before the amputation, and social background. *The film One Step at a Time (16mm, B/W, 15 min, 1963, $12 rental), distributed by International Film Bureau, 322 South Michigan Avenue, Chicago, IL 60604, provides insight into the experiences of a person undergoing an amputation. Made at the Rehabilitation Institute of Montreal, the film presents the personal story of a man who has had his leg amputated, discards his crutches, and is fitted with and learns how to walk with an artificial leg.*

As a teacher, you may have a student who is an amputee. His/her behavior may be typified by depression, resentment, anxiety, defiance, resignation, indifference, perfectionism, impulsivity, dependency, aggression, or withdrawal. You will see any type of behavior that you would see in those students without amputations. The important

point to remember is that no matter how the student is handling his/her image, he/she is called upon over and over again to expend greater effort and energy than is normally demanded of a non-handicapped person for the accomplishment of the task at hand. Your understanding, rather than pity, and lowered expectations based on the amputation, will make a difference in the student's adjustment and will lead to success in your vocational program and to eventual employment.

PARALYSIS



Until a few years ago, a person who was paralyzed did not live very long. If born paralyzed, he/she usually died in infancy. If the paralysis was caused by an accident or disease, he/she died soon after it began. Of the 400 Americans with spinal paralysis carried off the battlefields of World War I, 90 percent were dead within a year of receiving their wounds. (Saltman)

How Many Americans are Paralyzed to Some Degree?

(a) 1 out of 1,000
(b) 1 out of 500
(c) 1 out of 200
(d) 1 out of 100

An estimated 940,000 Americans are affected by paralysis of various kinds and causes. *This near million population, almost equally divided between male and female, breaks down to 5.6 paralytics for every 1,000 population, or 1 out of every 200 persons.* (National Health Survey, July, 1957, to June, 1958) The important point to remember is that this number includes all those with some degree of paralysis as a result of spinal cord injuries, polio, multiple sclerosis, etc. Of these, 12.4 percent or 117,000 are paralyzed as the result of spinal cord injuries. This 117,000 figure is very close to the 200,000 Americans reported paralyzed to some degree as a result of spinal cord injuries by the Department of Health, Education and Welfare.

What Causes Paralysis?

--Diseases such as polio and muscular dystrophy which attack the

muscles or nerves may cause paralysis.

--Accidents are a major cause of paralysis. From the moment of birth--when an obstetrical mistake may injure the child--man is subject to accident: falls, gunshot wounds, car crashes, injuries in industry, sports, or war.

--Hemorrhages and other accidents to the brain of the child at birth may cause paralysis.

--A stroke may cause paralysis.

--A tumor within or pressing against the brain or spinal cord may cause paralysis.

--Swallowing a poison such as machine oil may cause paralysis.

What are the Different Types of Paralysis?

PARALYSIS is the loss of voluntary action caused usually by disease or accident. There are several types of paralysis named according to the extent of the body paralyzed. (Rusk)

MONOPLEGIA	partial or complete paralysis of one limb as a result of injury to the spinal cord caused by accident or disease
HEMIPLEGIA	partial or complete paralysis of one lateral half of the body or part of it caused by an injury to the motor centers of the brain. Speech, and sometimes the muscles on one side of the face, may be affected (Aphasia is often a result)
TRIPLEGIA	partial or complete paralysis of three extremities as a result of injury to the spinal cord caused by accident or disease
QUADRUPLEGIA OR TETRAPLEGIA	partial or complete paralysis of both legs and arms as a result of injury to the spinal cord caused by accident or disease
PARAPLEGIA	paralysis of the lower part of the body as a result of injury to the spinal cord caused by accident or disease

Hemiplegia

Before talking about the paralysis of one (monoplegia) or more limbs (triplegia, quadruplegia, paraplegia), it is necessary to describe hemiplegia because it is different from the other types of paralysis.

Hemiplegia is paralysis of one-half of the body or part of it caused by brain damage rather than by injury to the spinal cord. In addition to this paralysis of one side of the body or part of it, there may also be perceptual and intellectual impairments which are not present in other types of paralysis.

It is likely that you as a teacher or administrator in a vocational program will work with a student who has undergone rehabilitation for hemiplegia. You naturally are not skilled in providing rehabilitation for the perceptual, intellectual and emotional impairments which are associated with hemiplegia. However, your knowledge of them will provide you with a basis for making minor modifications in the physical setup of your room and method of making assignments. In addition, you will become more aware of reasons for the individual's acting in ways which you might interpret as intentionally seeking sympathy, or as being offensive or lazy.

What Causes Hemiplegia?

A stroke or cerebral vascular accident (CVA), an interference with the blood vessels that supply oxygen to the brain, often causes brain damage. The damaged portion of the brain determines if there will be hemiplegia, weakness or paralysis of one side. If the paralysis is also accompanied by the inability to speak, write or understand spoken or written language, aphasia is an additional disability to cope with. Part I of It's About Time Physical Disabilities Came Out in the Open! will address only hemiplegia, weakness or paralysis of one side of the body. Additional information on aphasia is included in It's About Time Physical Disabilities Came Out in the Open!, Part III.

Common Perceptual Impairments of the Person with Hemiplegia

--Difficulty in perceiving objects accurately. For example, a person with hemiplegia asked to copy draws instead . What happened? He/she perceived the object not as you or I, but instead rotated it 90°. The person did not do this out of lack of motivation or hostility, but drew it as he/she saw it.

--Difficulty in distinguishing foreground from background. Thus,

it would be difficult for the person with hemiplegia to work in a cluttered workshop, lab, kitchen, etc. *It is important to keep the environment as visually simple as possible.*

--Difficulty in perception of the upright. For example, when asked to judge when a line is horizontal or vertical, the person with hemiplegia is likely to make mistakes.

--Difficulty in scanning the environment. For example, a person with left hemiplegia is likely not to see doors, obstacles, etc., on his left side.

--Difficulty in following instructions related to the body. Often, the person with hemiplegia cannot identify parts of his/her body. For example, not locking a foot brace would probably be due to a lack of awareness of the disabled part of the body rather than memory impairment.

Common Intellectual Impairments of the Person with Hemiplegia

--Difficulty in remembering what is heard or seen. A person with hemiplegia may be able to remember things that he hears but not what he sees or vice versa. *The important point to remember is that if a person can't remember what he hears, he should be shown what to do; if the person can't remember what is shown, he/she should be told what to do. The person will have to repeat activities before they are committed to memory.*

--Difficulty with abstract reasoning. For example, if the person can operate a Singer sewing machine, he may have difficulty in operating a White sewing machine.

Emotional Reactions Often Experienced as a Result of Hemiplegia

Emotional reactions to hemiplegia are as varied as the people who have hemiplegia. The following emotional reactions are not necessarily a part of hemiplegia, but they often occur.

--Denial. The individual may deny that anything is wrong. He may say he can't move his leg because he's lazy. As long as the person denies the hemiplegia, rehabilitation will not occur. But denial does perform a function: it is a defense mechanism which keeps the person from being overwhelmed by the new disability.

--*Depression.* As the person with hemiplegia begins to accept the hemiplegia, he/she will probably experience depression or mourning for loss of that part of the body that is paralyzed. However, this also is considered to be a necessary part of rehabilitation.

--*Regression.* Since the person is enduring more stress than usual, he/she may not be able to or not want to handle the increased stress, and it is very natural to regress to a less mature emotional state.

--*Egocentricity.* Since the person with hemiplegia may feel his/her life is in danger, he/she may try to become the center of attention. It is often difficult to think of anything or anyone else.

--*Disinhibition.* Often the person with hemiplegia does not have control over emotions as before. The person may laugh or cry at inappropriate times and may be increasingly irritable. These emotional displays are often the result of brain damage rather than responses to a conversation or interaction that has just occurred.

Your student who has already received extensive rehabilitation will have been taught how to compensate for particular impairments in perceptual and intellectual reasoning. However, you will still probably notice some of the difficulties listed above. In addition, you should keep the following suggestions in mind as you work with the individual in your class.

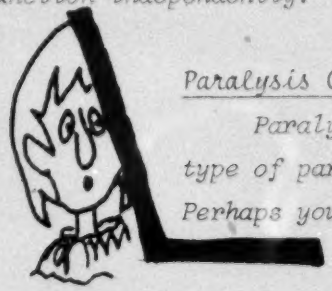
-Be sure to give only the number of tasks that the individual can handle.

-Give simple, concrete instructions with many repetitions.

-Show the student exactly what to do and when to do it.

-Provide emotional support of the student's capabilities.

Do make sure that any changes you make are necessary ones. Unnecessary modifications will only decrease opportunities for the student to function independently.



Paralysis Caused by Injury to the Spinal Cord

Paralysis caused by injury to the spinal cord is the type of paralysis you are probably the most familiar with. Perhaps you have worked with one or more students who have

had paralysis of one limb (monoplegia), two limbs (paraplegia), three limbs (triplegia) or four limbs (quadruplegia). The extent of the paralysis is determined by the level of injury, since an injury at any point of the spinal cord affects all of the body below the point of injury. (Saltman)

This injury is different than hemiplegia, just discussed, since injury to the spinal cord doesn't create perceptual or intellectual impairments. However, there are emotional and physical problems which have to be dealt with. Not only are there the physical problems caused by the paralysis, such as lack of sensation, spasms, etc., but there are also physical problems created by building architecture.

This section discusses the emotional problems encountered by persons with spinal paralysis and both types of physical problems, those caused by the paralysis and those created by architecture. The discussion of architectural barriers will be directed to those barriers which restrict use of a wheelchair and/or crutches.

What Are the Physical Problems of a Person with One or More Limbs Paralyzed?

--Spasms, involuntary muscles jerking, are a typical problem. Nerves partially cut off from the control of the brain may still carry impulses, but the impulses are not able to get to the brain. As a result, the impulse goes up to the point of injury and then returns down the nerve, creating a muscle contraction called a spasm. Anything can set off a spasm: a cold draft, tight shoes, constipation, sudden excitement. Not all persons with a paralyzed limb suffer from spasms, and those who have them do not suffer from them all the time or with equal severity. Often moving around may curb the spasms, but in more severe cases, medication or actually cutting the nerves involved may be necessary. *As a teacher, it is important to realize that a spasm in a paralyzed leg or arm is normal and should not create undue concern.*

--A paraplegic is highly susceptible to disease, especially in the kidney, bladder, and other organs concerned with elimination. Any degree of paralysis requiring a wheelchair generally affects these organs. And, as a result, stone formation, malfunctioning, blockage and in-

fection of the excretory system are all possible problems. Many paralyzed persons can train themselves, through trial and error and by using such muscle control and sensations as are left, to maintain normal excretory functions. Others with uncontrolled spasms, no muscle control, or no sensation to indicate when the bladder is full, will have to use a catheter (thin rubber tube) to keep the urine flowing. Such a person must have lavatory facilities to empty the catheter bag when full, and such facilities should be private to eliminate unnecessary embarassment. This is one of those "inconveniences" which has to be accepted and become a part of normal routine living.

--A lack of sensation in the paralyzed parts of the body is a problem. Anything that might physically harm the paralyzed limb, such as heat, severe cold, rubbing, scraping, and striking objects, must be avoided. In addition, no sensation is felt when the blood has been forced out of the skin by pressure. When prolonged pressure is not detected, PRESSURE SORES (decubitus ulcers) occur. They become enormous in size and badly infected and are hard to cure. Plastic surgery is sometimes needed. A quadruplegic in bed who cannot move of his own accord must be moved regularly. A paraplegic will be reminded to turn over every two or three hours when sleeping, even if this necessitates setting the alarm several times during the night. When in a wheelchair, the paraplegic must remember to push up out of the seat every 15 minutes or so in order to permit the blood to circulate in the skin under the bony points of his buttocks--one of the most frequent sites of decubiti. (Saltman)

--If not physically active, other physical complications can occur. These include: loss of muscle power and function, circulatory deterioration, and bone weakness and porosity because of the lack of weight-bearing stress and loss of calcium.

What Types of Emotional Adjustments are Necessary for the Person with One or More Paralyzed Limbs?

Obviously, there are emotional adjustments to be made by both the individual and his family and friends. However, the extent and success of adjustment depends upon the individual's personality before paralysis and his commitment to rehabilitation.

Notice one paraplegic's attitude.

> *How else can one move over to the television and change programs without getting up, carry home a large package on one's lap and still have both hands free, and go through a mud puddle without getting one's feet wet?* (Fishman)

A sense of humor is most definitely an asset for anyone, disabled or not disabled!

But without a doubt, physical disability constitutes a threat to a way of life.

> *"It may cause intense anxiety, depression, and rage. It may be interpreted as punishment for sins real or imagined. It may represent a threat to ommipotent strivings or a normal mastery and may produce feelings of helplessness and panic. It may unloose previously controlled psychopathology such as paranoid ideas and create intolerable interpersonal relationships. On the other hand, the disability may be organized into neurotic strivings, such as dependency and fear of competition, and be unconsciously welcome as a way out of a conflictive struggle.* (Saltman)

One particular emotional conflict is the question of one's ability to marry, enjoy sex, and have children. Many paraplegics marry and have very satisfying marriages. "Paralysis that destroys bladder and bowel control often affects the ability to have sexual relations. By no means are all paraplegics impotent, however. The married person made impotent by an accident has a special problem of marital adjustment; its successful outcome usually depends on many other factors of the relationship between husband and wife than sexual capability alone.

Impotence, of course, is not the same as sterility--the inability to have children. Most often this, too, is a side-effect of paraplegia, in men as well as women. On the other hand, wives of paraplegics do become pregnant. Also women paralyzed from the waist down have often borne babies, sometimes delivering them by normal means, more often by Caesarean section. Even for a quadruplegic, motherhood is not utterly impossible, as a New York woman recently proved that artificial insemination is a possibility if not forbidden by moral or religious beliefs." (Saltman)

There will be emotional conflicts. *And the student in your class who is paralyzed will be helped by your emotional support: providing experiences which he can successfully complete, making physical changes*

in the classroom (a space large enough for his wheelchair to fit in the classroom seating arrangement, a table modified so it can be used as a desk with enough room for the wheelchair to fit under it), and treating him not as a paraplegic/quadruplegic, etc., but as an individual who, with great determination and courage, has not allowed his disability to prevent his attendance in your class.

All of the following films will provide insight into the feelings and experiences of an individual who is a paraplegic. The films can be borrowed from the source indicated.

Beating the Averages (16mm, color, 30 min, free loan), distributed by Chief Distribution Center, National A-V Center (G.S.A.), National Archives and Records Service, Washington, DC 10409, shows a family's coping with problems posed by a son who is a paraplegic, the son at work, and some of the son's feelings in a group discussion setting.

Della (16mm, color, 12 min, rental $10.50), distributed by Sister Kenny Institute, A/V Publications Office, 1800 Chicago Avenue, Minneapolis, MN 55404, depicts the results of passive deterioration of a 35 year old deaf paraplegic woman prior to rehabilitation. Her early physical rehabilitation and re-education in living with a handicap are shown as well as present independent mode of living and her contributory influence on the deaf children in her community.

Linda (16mm, B&W, 14 min, free loan), distributed by Rehabilitation Institute of Oregon, Division of Good Samaritan Hospital and Medical Center, 2010 Northwest Kearney Street, Portland, OR 97209, is a film about a 16 year old girl. Linda tells her own story of the accident that caused her paraplegia and her successful rehabilitation. Even though not depicting vocational training, the film develops an awareness of a student's rehabilitation program before entering a vocational program.

Paraplegic Patient Education: Activities in Your New Life (M-1757-X) (16mm, color, 7 min, free loan), distributed by Media Resources Branch, National Medical Audiovisual Center (Annex), Station K, Atlanta, GA 30324, looks at some of the problems of adjusting to a new life following a crippling disease or accident. The film suggests ways to solve these problems (social adjustments with family and friends, architectural barriers) and achieve physical and financial independence. This film provides an insight to vocational teachers about a paraplegic's adjustment problems after rehabilitation.

Can the Person Who is Paralyzed or Partially Paralyzed be Competitively Employed?

The answer is a most definite and vociferous YES. A great many

surveys and follow-up studies have indicated that physically disabled persons are employed productively at a seemingly limitless range of occupations, with all types and degrees of physical limitations, and in spite of considerable reluctance by employers to hire them. The Veterans Administration published the following listing of occupations held by paraplegic veterans of World War II and Korea (1957). Numbers in parentheses indicate the number of cases reported at each occupation level. (McDaniel)

- Professional, Technical and Managerial Work (224)
- Artistic Work (14)
  - Artistic Drawing and Related (3)
  - Artistic Shaping (2)
  - Artistic Arranging (9)
- Musical Work (2)
  - Musical Work, Instrumental (2)
- Literary Work (14)
  - Creative Writing (3)
  - Copy Writing and Journalism (11)
- Entertainment Work (5)
  - Entertainment Work, Oral (4)
  - Entertainment Work (n.e.c.) (1)
- Public Service Work (36)
  - Instructive Service Work (24)
  - Social Service Work (10)
  - Protective Service Work (2)
- Technical Work (77)
  - Laboratory Science Work (11)
  - Business Relations Work and Related (26)
    - Accounting and Related Work (8)
    - Legal Work (14)
    - Purchase and Sales Work (4)
  - Geographical Science Work (5)
  - Engineering and Related (16)
  - Drafting and Related (19)
- Managerial Work (76)
  - Managerial Work (Clerical, Administrative Fiscal, Sales) (62)
  - Farming Supervision (8)
  - Managerial Work, Manufacturing (4)
  - Managerial Work, Transportation and Miscellaneous Services (2)
- Clerical and Sales Work (102)
- Computing Work (7)
- Recording Work (29)
  - General Recording Work (20)
  - Typing (n.e.c.) (4)
  - Equipment and Materials Checking (3)
  - Routine Recording Work (2)
- General Clerical Work (8)
  - Classifying and Related Work (2)

Clerical Machine Operating (n.e.c.) (4)
Routine Clerical Work (n.e.c.) (2)
Public Contact Work (58)
General Public Contact Work (19)
Selling (39)
Agricultural, Marine and Forestry Work (17)
Farming (17)
General Farming (9)
Animal Care (6)
Crop Farming (2)
Mechanical Work (103)
Machine Trades (12)
Mechanical Repairing (10)
Complex Machine Operating (n.e.c.) (2)
Crafts (91)
Electrical Repairing (10)
Structural Crafts (3)
Bench Crafts (59)
Graphic Art Work (19)
Manual Work (34)
Observational Work (3)
Inspecting and Testing (1)
Machine Tending (n.e.c.) (2)
Manipulative Work (30)
Structural Work (1)
Bench Work (Assembling and Related) (27)
Machine Operating, Manipulative (2)
Elemental Work (1)
Elemental Work, Light (1)

True stories of successfully employed persons with varying degrees of paralysis are numerous.

> --A German machine gun bullet in the spine during a battle in Austria in 1945 put Stanley F. Den Adel in a wheelchair for life, but it didn't slow him down much. He's a Bank of America vice president in charge of data processing in Los Angeles. Mr. Den Adel, 49, is married and has a daughter. ("The Gutsiest Americans")
>
> --Max C. Reinberger, a paraplegic, owns and operates seven Duluth, Minnesota, firms whose fields range from real estate to computer services. And he's a second-term city councilman. ("The Gutsiest Americans")
>
> --A 21 year old man and a paraplegic, injured in a motorcycle accident while in high school, is now married, employed in Milwaukee, and his wife is now expecting a baby.
>
> --As a result of a car accident, a young man living in Stoughton is now a paraplegic. He manages a department of a large store and moonlights repairing engines.

And you would no doubt add your own examples to the list.

Obviously, not all impaired workers are desirable employees, but neither are all unimpaired workers desirable employees. The point is that the handicap or disability is not what determines whether the person will be a good or bad employee or employer. Rather it is the training, skill, and personality which determines his/her success. However, it is often the type of building or building facilities which prevents a qualified person, who happens to be handicapped, from getting the job.

Several filmstrip/cassette sets show how the physically handicapped person can function independently in various types of occupations. All of the following are available on free loan to Wisconsin residents from the Vocational Education Resource Materials Collection, Center for Studies in Vocational and Technical Education, 321 Old Education Building, Box 49, University of Wisconsin, Madison, WI 53706. The "S" number or item order number preceding each reference is the number to use when selecting materials to borrow.

S-1712 *Physically Handicapped Workers in Business and Distributive Occupations*

S-1713 *Physically Handicapped Workers in Trade, Technical and Industrial Occupations*

S-1714 *Physically Handicapped Workers in Service Occupations*

S-1715 *Employment of the Physically Handicapped*

Architectural Barriers to Education and Employment

Architectural barriers have thoughtlessly and needlessly been included in the planning of buildings for many decades. One reason for this is that until recently there have never been as many paralyzed individuals who lived and were able to lead productive lives. However, this reason does not make it any easier when a person with a physical handicap attempts to get an education or a job in a building built thirty years ago.

Charles E. Caniff describes in a humorous vein frustrations met as a taxpayer:

> I-as you-am a taxpayer. The fact that I use a wheelchair as a means of locomotion in no way reduces or limits my responsibilities to pay taxes. My income tax reports are subject to

the same scrutiny as every other citizen's. In fact, my last report was scrutinized and I was instructed to report to my local Internal Revenue Office with evidence to support claims made in my tax statement.

I arrived at the proper address on the appointed day. I found an impressive building, the Federal Court House. It covered a whole city block. It had huge entrances on each side--that could be reached only by climbing an equally impressive flight of steps. Finally, I located a "vehicle entrance" to the basement of the building. Hopefully, my wheelchair could be approved as a vehicle. I went down a precipitous incline, dodging postal trucks on the way. In succession, I negotiated a ramp, a loading dock, and the building's boiler room and finally reached a freight elevator, which did not stop on my floor. After going up two additional floors, transferring to a passenger elevator and going down another floor, I finally reached my destination.

The return trip out of the building was by the same circuitous and sometimes dangerous route, made easier only by my previous experience and my relief in knowing that the tax collector had agreed my tax report was in proper order. (Caniff)

Standards have now been issued for all federal buildings and most state buildings. In addition, organizations are actively working to upgrade building codes and to reach architects. Needless to say, until buildings are changed to accommodate the physically disabled person, he will be frustrated as this poem accurately depicts.

DEAR JOHN

Most architectural barriers I've learned to take
in stride:
Those steps, those curbs, those revolving doors
That make me stay outside.

I can live with water fountains that are level
with my ears,
And I have never used a phone booth in all my
many years.

But when it comes to rest rooms it really is
a blow,
It's knowing that when I've gotta, I ain't
gonna get to go.

I burn the rubber of my wheels; I can hardly wait,
But my chair is thirty inches wide, the John Door,
twenty-eight.

If I stop down at the corner for a round of brew
or two,

I may not only fill my bladder, I may also fill
my shoe.

Some plead for civil justice when they are set
upon;
I ask for only one freedom--the right to use the
John.

I've thought about reforming to change my wayward
ways--
To become a model of deportment for the remainder
of my days.

But when I get to heaven and sit before the gate,
Will St. Peter say, "You're thirty inches wide,
our John door, twenty-eight"?

--By Carl F. Odhner
Coordinator of Professional Services
Muhlenberg Medical Center
Bethlehem, Pennsylvania

What Are Some of the New Standards for Physical Facilities?

Basically, all federal and state legislation provide for the following in newly constructed buildings:

1. At least one entrance easily negotiated by all regardless of method of locomotion. This is accomplished if the entrance is without steps and the door is wide enough for easy admittance.

2. Accessibility to all floors. In multi-story construction, an elevator suffices if the door is wide enough for the passage of a wheelchair.

3. One usable lavatory for each sex. This requires the installation of one stall wide enough to be negotiated, spacious enough for maneuvering and equipped with grab bars to assist in the operation. ("Buildings for All to Use")

The standards set up by Federal law and state legislation are much more specific and include codes for:

Walks: width and slope for ease of navigation
Parking Space: width for loading and unloading safely
Ramps: slope and surfacing for easier use
Stairs: steps without projected stair nosings
Floor Surfacing: nonslip flooring for safety
Mirrors: mounting heights for all needs
Water Fountains: type and mounting height for easy use
Public Phones: type and mounting height for normal wheelchairs
Controls: mounting height of light switches, etc., for all to reach

Identification: raised numbers and numerals for either sight or touch

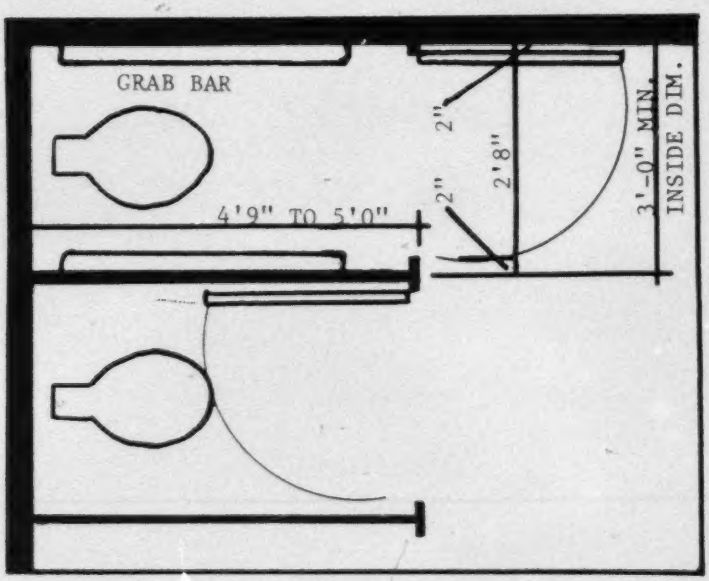
Warning Signals: audible and visual for all need

("Buildings for All to Use")

The standards required by the General Services Administration are much more specific and have been the guide for most state legislation.

Note that stairs require steps without a projected stairnosing. This makes no difference to a person in a wheelchair, but to an individual with a knee, ankle, or hip restriction, artificial legs, leg braces or crutches, stairs cause a great difficulty. Projected stairnosings catch the toes. Ideally, the steps should have a non-skid tread, and the nosing which is flush with the riser should be in a contrasting color.

The following diagram indicates dimensions required in the restroom to accommodate a person in a wheelchair. With one such restroom in every building, public and private, no more "Dear John" letters will be necessary.



Modified Stall (additional space allows person in wheelchair to turn around.)

Standard Stall

("Buildings for All to Use")

Two films you may be interested in vividly depict modifications of educational facilities that are required so a person in a wheelchair can function independently.

All Things on Wheels Aren't Equal (16mm, color, 10 min, free loan), distributed by Hofstra University, Hempstead, NY 11550, stresses the need for modification of post-secondary schools. The film shows ramp, elevator, telephone and bubbler modifications.

The Surest Test of a Civilization...Is to be Found in Its Architecture (16mm, color, 10 min, free loan), distributed by the Easter Seal Society for Crippled Children and Adults, 521 Second Avenue West, Seattle, Washington 98119, traces a paraplegic wheelchair user just leaving a rehabilitation unit, ready to enter the community, and her subsequent encounters with architectural barriers. Somewhat lighthearted, yet moving, there is no dialog, but an original music score helps interpret the action.

International Symbol of Access: What Is It?

Whenever this symbol appears on a building, it indicates that a person in a wheelchair can enter unassisted, conduct his business, and return to the mainstream of pedestrian traffic or a parked automobile without meeting physical impediments of design or construction. (People Are Asking About...)

The symbol was adopted by Rehabilitation International, a federation of national and international organizations providing rehabilitation services for the disabled in more than 60 countries, in 1969 at its 11th World Congress on Rehabilitation of the Disabled.

The regulations for displaying the symbol are not as rigid as the federal and state standards discussed previously. In addition, the requirements vary according to the type and use of the building. For example, if the business conducted in a building normally takes longer than a half hour, then the symbol should be displayed only if facilities within the building are accessible and usable, e.g., restrooms for each

sex and reachable public telephones and water fountains, accessible entrance, and elevators to all public floors. However, a bank where business conducted generally takes a short period of time is only required to have an accessible entrance.

The physical plant modifications required by law are being included in the architect's plans for new secondary and post-secondary vocational buildings, and some of the older post-secondary vocational buildings are being remodeled in order to make them physically accessible.

What Can I as a Teacher do to Not Allow my Classroom to Handicap the Person with a Physical Disability?

There are many degrees of a physical disability. In some cases no adjustments may be necessary. The student with a physical disability who can function successfully does not need or desire any changes in the normal classroom routine. If any unnecessary modifications did occur, they certainly would not promote the independence and self-reliance that the student is most likely seeking to attain.

If, however, it is determined that the student cannot function adequately, one of two steps may be taken. (1) The student may be admitted to the activity after certain modifications in its structure have made it possible for him to compete successfully and to acquire the desired learning. (2) Or the institution may waive a particular requirement and, after careful consideration, prescribe another which is considered an adequate substitute. In effect, the institution takes responsibility for reducing barriers to the students that are inherent in its regular curriculum. Ideally, these modifications do not result in a lowering of standards. They are essentially ways of circumventing a barrier, achieving mastery of a subject matter area through slightly different means. (Rusalem)

Examples of modifications in the class activity:

1. In a lab situation the instructor and student assess the physical requirements of the laboratory experiments. Those which are within the student's capacities are retained intact in the program, and those which go beyond his physical resources are modified, e.g. teamwork with other students, substitution of certain experiments,

techniques, equipment and materials. If absolutely necessary, the student will be excused from activities which are obviously impossible or hazardous.

2. If a student cannot physically take a test, the manner of administering it should be changed. With the help of a person who can write what the student says or an available typewriter and flexible time limits, virtually any disabled student can manage the physical aspects of a test. For example, a student with severe hand limitations, who cannot write or type, dictates his essay test responses to a person who will write what he says. This will naturally require more time than if he himself typed or wrote the answer, but he will have completed the test.

3. If papers or reports are required, a manually handicapped person could possibly type his own or dictate his work for a typist later to transcribe.

4. Limitations in the range of movement resulting from physical disabilities as well as those resulting from confinement in a prosthetic or orthotic device such as a wheelchair have to be considered. For example, the aisle between desks should be large enough for a wheelchair to pass between (2½ feet) and a desk or table used as a desk should be high enough to accommodate the wheelchair (2½ feet).

5. The strength required to move objects should be considered. Some persons with physical disabilities have less physical strength than physically normal persons. As a result, design of certain units, particularly those which move or have to be moved (classroom doors, cabinet doors, equipment), should include consideration of the weight involved and the nature of the movement required (e.g. push versus pull). These modifications could be made either by altering the material used in construction or by the use of mechanical devices such as hinges or lifts which can reduce the physical strength required for manipulation.

Examples of waiving a particular requirement and substituting another that accomplishes the desired result:

1. A limitation in the use of the shoulders, arms, hands, and fingers may prevent a student from taking notes, as required in the

class. If another student makes a duplicate set of notes for him, the notetaking requirement need not be a barrier.

2. A student who requires frequent rest periods and as a result must schedule courses only in the morning could possibly be allowed to view a class given in the afternoon the next morning by videotape.

How Can I Determine the Modifications Necessary?

To make any of these adjustments, you as a teacher and/or with the help of guidance personnel must make some analysis of the student's physical capabilities before you can decide on which type of modification, if any, is needed. The following checklists can provide some type of guidance for a formal evaluation.

Functional Analysis for Physically Handicapped Students
(Rusalem)

MANIPULATION

Capable of self-care in building?
Capable of handling laboratory equipment safely?
Capable of writing using pen and pencil and taking notes?
Capable of handling chalk in classroom and writing on blackboard?
Capable of eating by self-feeding?
Capable of carrying own books?
Capable of turning pages?
Capable of handling coins?
Capable of steady hand movements?
Capable of speedy hand movements?
Capable of two-handed coordinated movements?
Capable of picking up gross objects?
Capable of picking up fine objects?
Capable of opening doors?
Capable of typing movements?
Capable of raising hand for instructor's attention?
Capable of manipulating papers?
Others.
Adjustments required?

MOBILITY

Travel to and from college.
Travel on level surfaces.
Special devices used.
Walking up and down steps.
Relative speed of mobility.

Steadiness and balance.
Assistance required.
Ability to sit in and rise from chair.
Ability to walk up incline.
Ability to walk on hard smooth surface.
Ability to pass through narrow aisles and doorways.
Special aids required:
...Special Elevator service
...Early dismissal
...Student helper
...Elimination of field trips
...Paid attendant
...Close safety supervision
...Others

Several filmstrip/cassette sets discuss possible classroom modifications when working with the physically handicapped student. All of the following are available on free loan to Wisconsin residents from the Vocational Education Resource Materials Collection, Center for Studies in Vocational and Technical Education, 321 Old Education Building, Box 49, University of Wisconsin, Madison, WI 53706. The "S" number or item order number preceding each reference is the number to use when selecting materials to borrow.

S-1632 Classroom Organization to Teach the Physically Handicapped

S-1723 Making Vocational Education Accessible to the Physically Handicapped

The Major Barrier to Educational and Employment Opportunities

The major barrier to success in school or on-the-job lies in the area of people's feeling. When the employer, faculty and/or administration of a school has positive attitudes toward accepting and educating students with physical disabilities, ways are available to solve the mechanical problems. But when the employer or educational institute fails to develop a positive concept of the individual, even if he/she happens to be physically disabled, the tremendous resources of these people fail to materialize and the community and society are so much the worse for it.

The challenge for vocational educators is to be innovative enough so that methods can be devised so the physical disability does not have

to prevent the individual from succeeding in the vocational program. You, as an individual, are not expected to have all the answers. There are numerous resources to ask for help. Your own counselors and the Division of Vocational Rehabilitation are two primary sources.

Following are suggested sources of assistance: National and State Organizations Serving the Physically Handicapped, Resource List for Mechanical Modifications, Resource List for Physical Facility Modifications of an Education Institution, and Travel Information for the Physically Handicapped Person.

NATIONAL AND STATE ORGANIZATIONS

Referral Agencies

CLOSER LOOK
The Special Education Information Center
Box 1492
Washington, D.C. 20013
(Specializes in helping parents and others find services for children with mental, physical, emotional and learning handicaps)

WISCONSIN DIVISION OF VOCATIONAL REHABILITATION
1 West Wilson
Madison, WI 53702

COMMUNITY SERVICES BOARD SYSTEM
Each county in Wisconsin is served by a 51.42 Board (Community Mental Health, Alcoholism, and Drug Abuse Service Boards) and a 51.437 Board (Developmental Disabilities Service Board). Their titles vary from county to county (Comprehensive Health Program, Unified Services, Comprehensive Services, etc.). Contact your county government building for the address and telephone number of your Community Services Board System. The boards provide information and services for persons with the following disabilities: alcoholism and drug abuse, mental illness, mental retardation, epilepsy and cerebral palsy.

WIS (Wisconsin Information Service)
WIS provides the following information and referral services to Wisconsin residents: kinds of services available, persons to contact and location in areas such as finance, food, homestead, relief, recreation, social security, health care, housing and many others. The following nine WIS Centers serve Wisconsin residents. You may call any of these centers collect:

Timothy Bruer, Center Manager
Madison I & R Center
City/County Building
210 Monona Avenue
Madison, Wisconsin 53709
608-266-6366

Dan Newton, Center Manager
Rock Information Service
431 Olympian Boulevard
Beloit, Wisconsin 53511
608-364-4488

Ms. Marianne Oberbrunner, Project Coord.
Milwaukee Information and Referral
161 West Wisconsin Avenue, Room 7071
Milwaukee, Wisconsin 53203
414-272-6147

Jane Cahill, Center Manager
Fond du Lac I & R Center
174 West Division Street
Fond du Lac, Wisconsin 54935
Toll free number: 800-242-9705
414-923-1170

Rosemarie Dercks, Center Manager
Outagamie Information and Referral
128 North Oneida Street
Appleton, Wisconsin 54911
414-731-5428

Mary Rollins, Coordinator
Mary Nachtwey, Center Manager
North Eastern Wisconsin Information and Referral (NEWIR)
1221 Bellevue
Green Bay, Wisconsin 54302
414-465-1440

Jim Harrison, Center Manager
Wisconsin Information Service
1707 Main Street
La Crosse, Wisconsin 54601
Toll free number: 800-362-8268
600-782-0022

Barron County Information Service
Court House
Barron, Wisconsin 54812
715-537-5691

Jay Schoonover, Center Manager
Information and Referral Service
200 3rd Avenue West
Durand, Wisconsin 54736
715-672-4101

Agencies Serving Persons With All Types Of Physical Disabilities

Division for the Blind and Physically Handicapped
Library of Congress
Washington, D.C. 20542

Information and Research Utilization Center in Physical Education
and Recreation for the Handicapped (IRUC)
American Association for Health, Physical Education and Recreation
1201 16th Street
Washington, D.C. 20036
Mr. Julian U. Stein

Institute of Rehabilitation Medicine
400 E. 34th Street
New York, New York

Institute for the Crippled and Disabled
400 1st Avenue
New York, New York

International Society for Rehabilitation of the Disabled
219 E. 44th Street
New York, New York 10017

The National Foundation-March of Dimes
P.O. Box 2000
White Plains, New York 10602

The National Foundation-
March of Dimes
Capitol Chapter
502 E. Main Street, Room 3
Madison, Wisconsin 53703
Mr. Wallace Ahlborn

The National Foundation-
March of Dimes
Southeastern Wisconsin Chapter
1543 N. Prospect
Milwaukee, Wisconsin 53202
Mr. Robert F. Traub

The National Foundation-
March of Dimes
Schofield Chapter
1326 Schofield Avenue
Schofield, Wisconsin 54476

The National Foundation-
March of Dimes
Regional Office
1308 McKay Tower, Campus Square
Grand Rapids, Michigan 49502
Director: Mr. Ernest L. Bates

National Easter Seal Society for
Crippled Children and Adults
2023 West Ogden Avenue
Chicago, Illinois 60612

The Easter Seal Society for
Crippled Children and Adults of
Wisconsin
2702 Monroe Street
Madison, Wisconsin 53711
(608) 231-3411
(In addition, each Wisconsin
county has an Easter Seal Society
organization. Contact the state
organization listed above for
information about your county
organization.)

National Rehabilitation Association
1522 K Street, N.W., Suite 1120
Washington, D.C. 20005

Accent on Information
P.O. Box 700
Gillum Road and High Drive
Bloomington, Illinois 61701

Accent on Living, Inc.
P.O. Box 700
Gillum Road and High Drive
Bloomington, Illinois 61701

National Paraplegia Foundation
333 N. Michigan Avenue
Chicago, Illinois 60601

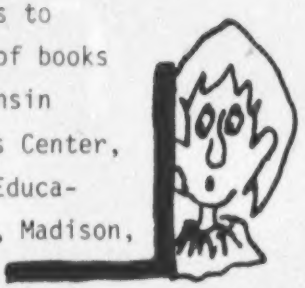
Greater Milwaukee Chapter
National Paraplegia Association
4121 N. Larkin Street
Milwaukee, Wisconsin 53211
Mrs. Daley, Principle Officer

Southwest Chapter,
National Paraplegia Foundation
1040 St. James Court
Platteville, Wisconsin 53818

Paralyzed Veterans of America, Inc.
7315 Wisconsin Avenue, Suite 301-W
Washington, D.C. 20014

Paralyzed Veterans of America, Inc.
Vaughan Chapter
P.O. Box 1337
Hines, Illinois 60141

RESOURCE LIST FOR MECHANICAL MODIFICATIONS



There are numerous and ingenious solutions to the mechanical barriers. Following is a list of books and brochures, available on free loan to Wisconsin residents from the Wisconsin Vocational Studies Center, Vocational Materials Resource Center, 321 Old Education Building, Box 49, University of Wisconsin, Madison, Wisconsin 53706, which detail mechanical modifications which compensate for loss of physical movement. Many are homemade shortcuts which effectively eliminate the barrier. The "S" number or item order number preceding each reference is the number to use when selecting materials to borrow.

S-925 Bray, Peter and Don M. Cunningham. "Vehicles for the Severely Disabled," Rehabilitation Literature, Volume 28, No. 4, April, 1967.

S-389 Do It Yourself Again, Self-Help Devices for the Stroke Patient, American Heart Association, 196[illegible].

S-387 Gutman, Ernest M. Wheelchair to Independence. Charles C. Thomas, Springfield, IL, 1968.

S-1832 Hodgeman, Karen and Eleanor Warpeha. Adaptation and Techniques for the Disabled Homemaker, Publication 710. A/V Publication Office, Sister Kenny Institute, 1800 Chicago Avenue, Minneapolis, MN 55404, 1973.

**S-915 Lowman, Edward W. and Judith Klinger. Aids to Independent Living, Self-Help for the Handicapped, McGraw-Hill Book Co., 1969.

S-386 McCullough, Helen E. and Mary B. Farnham, Kitchens for Women in Wheelchairs. University of Illinois Bulletin, Circular 841, Volume 70, No. 24, September 29, 1972.

S-385 Olson, Sharon C. and Diane K. Meredith. Wheelchair Interiors, National Easter Seal Society for Crippled Children and Adults, 1973.

S-917 Robinault, Isabel P. Functional Aids for the Multiple Handicapped. Harper & Row, 1973.

S-394 Rusk, Howard A., et al. A Manual for Training the Disabled Homemaker. Institute of Rehabilitation Medicine, 1970.

S-1359 "A Severely Handicapped Homemaker Goes Back to Work in her Own Kitchen." Institute of Physical Medicine and Rehabilitation, no date.

S-1358 "Training the Young Hemiplegic Homemaker." Institute of Re-

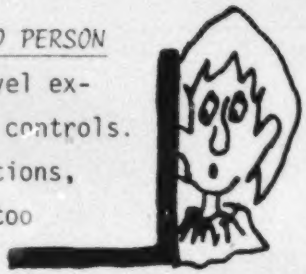
habilitation Medicine, no date.

S-412 Wheeler, Virginia Hart. Planning Kitchens for Handicapped Homemakers, Rehabilitation Monograph XXVII, The Institute of Physical Medicine and Rehabilitation, no date.

S-1248 Yuker, Harold E., et al. The Modification of Education Equipment and Curriculum for Maximum Utilization by Physically Disabled Persons; Education and School Equipment for Physically Disabled Students. Human Resources Center, Albertson, NY 11507, 1967.

**One of the most extensive listings available.

TRAVEL INFORMATION FOR THE PHYSICALLY HANDICAPED PERSON



Physically handicapped individuals can travel extensively. Many drive their own cars with hand controls. The chief concern is finding suitable accommodations, without steps and with bathroom facilities not too cramped. One traveler who had requested help from the manager without success, finally resorted to his own initiative. He got out his screwdriver, quietly took the bathroom door off. He often wondered what the maid thought when he/she found the door under the bed. Tools, spare parts for the wheelchair, and a sense of humor are required. (Saltman)

There are, however, several sources of information. The Travel Information Center, Moss Rehabilitation Hospital, 12th Street and Tabor Road, Philadelphia, Pennsylvania 19141, will send information about any area of the country that will be visited.

A book containing lists of accessible motels throughout the United States is available for $4.00 from the Wheelchair Traveler, Ball Hill Road, Milford, New Hampshire 03055, Douglas R. Annand, Editor-Publisher.

Also, several travel agencies specialize in conducting tours for the physically handicapped and arranging for all accommodations. The following agencies were listed in The New York Times Travel and Resort Section, February 23, 1975: ("The World from a Wheelchair: Travel for the Handicapped" by Stanley Carr.)

Evergreen Travel Service, Lynnwood, Washington
(Mrs. Betty Hoffman, President)
Flying Wheel Tours, Owatonna, Minnesota
(Judd Jacobson)
Grant Travel Consultants, Shrewsbury, New Jersey
(Jim Grant)
Handy Cap Horizons, Indianapolis, Indiana
(Mrs. Dorothy S. Axsom)
Hills Travel House, Sacramento, California
(Hilliard Fahn)
Kasheta Travel, East Rockaway, Long Island, New York
(Mrs. Marie Kasheta, President)

In addition, the following materials are available on free loan to Wisconsin residents from the Wisconsin Vocational Studies Center, Vocational Materials Resource Center, 321 Old Education Building,

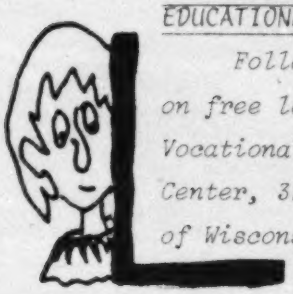
Box 49, University of Wisconsin, Madison, Wisconsin 53706. The "S" number or item order number preceding each reference is the number to use when selecting materials to borrow.

S-1200 A List of Guidebooks for Handicapped Travelers, Third Edition. The Women's Committee, The President's Committee on Employment of the Handicapped, 1972.

S-969 Motels with Wheelchair Units, Paralyzed Veterans of America, 1971.

S-1445 Wisconsin's Capitol with Ease, Guidebook for the Physically Handicapped, Disabled Veterans, Senior Citizers. MOBIL and Dane County Easter Seal Society, no date.

RESOURCE LIST FOR PHYSICAL FACILITY MODIFICATIONS OF AN EDUCATIONAL INSTITUTION



Following is a list of books and brochures, available on free loan to Wisconsin residents from the Wisconsin Vocational Studies Center, Vocational Materials Resource Center, 321 Old Education Building, Box 49, University of Wisconsin, Madison, Wisconsin 53706, which describes suggested building modifications. The "S" number or item order number preceding each reference is the number to use when selecting materials to borrow.

S-414 American National Standard, Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped, American National Standards Institute, Inc., approved October 31, 1961, and reaffirmed in 1971.

S-413 Architectural Checklist, Making Colleges and Universities Accessible to Handicapped Students, reprinted by the President's Committee on Employment of the Handicapped, Washington, DC 20210.

S-420 Design Standards to Accommodate People with Physical Disabilities in Park and Open Space Planning, Ries, Michael, Recreation Resources Center, University of Wisconsin-Extension, 1973.

S-916 Goldsmith, Selwyn. Designing for the Disabled, McGraw-Hill Book Company, Second Edition, 1967.

S-411 Making Facilities Accessible to the Physically Handicapped, State University Construction Fund, 194 Washington Avenue, Albany, NY 12210, January, 1974.

S-1028 Yuker, Harold E.; Revenson, Joyce and Fracchia, John F. The Modification of Educational Equipment and Curriculum for Maximum Utilization by Physically Disabled Persons, Design of a School for Physically Disabled Students, Human Resources Center, Albertson, NY 11507, 1968.

BIBLIOGRAPHY

Note: All of the materials below are available on free loan to Wisconsin residents from the Vocational Education Resource Materials Collection, Wisconsin Vocational Studies Center, 321 Old Education Building, Box 49, University of Wisconsin, Madison, Wisconsin 53706. The "S" number or item order number preceding each reference is the number to use when selecting materials to borrow.

S-958 Bardach, Joan L., "Psychological Considerations in Hemiplegia," MEDICAL AND PSYCHOLOGICAL ASPECTS OF DISABILITY, Beatrix A. Cobb, editor, Charles C. Thomas, Springfield, IL, 1973.

S-939 "Buildings for All to Use," AIA Journal. Reprinted by the National Easter Seal Society for Crippled Children and Adults, March, 1969.

S-954 Caniff, Charles E. "Architectural Barriers--A Personal Problem," REHABILITATION LITERATURE, January, 1962. Pages 13-14.

S-952 Fishman, Sidney, "Amputee Needs, Frustrations, and Behavior," REHABILITATION LITERATURE, November, 1959.

S-1027 "The Gutsiest Americans," NATION'S BUSINESS. Reprinted by the President's Committee on Employment for the Handicapped, Washington, D.C. 20210, June, 1973.

S-958 Lewis, Royce C., Jr., "Amputations and Amputees," MEDICAL AND PSYCHOLOGICAL ASPECTS OF DISABILITY, Beatrix A. Cobb, editor, Charles C. Thomas, Springfield, IL, 1973.

S-955 McDaniel, James W. PHYSICAL DISABILITY AND HUMAN BEHAVIOR, Pergamon Press. Maxwell House, Fairview Park, Elmsford, NY 10523, 1969.

S-941 PEOPLE ARE ASKING ABOUT DISPLAYING THE SYMBOL OF ACCESS, The President's Committee on Employment of the Handicapped, Washington, D.C. 20210, no date.

S-959 Rusalem, Herbert. GUIDING THE PHYSICALLY HANDICAPPED COLLEGE STUDENT, Bureau of Publications, Teachers College, Columbia University, New York, 1962.

S-394 Rusk, Howard A., et. al. A MANUAL FOR TRAINING THE DISABLED HOMEMAKER, REHABILITATION MONOGRAPH VIII, Fourth Edition, The Institute of Rehabilitation Medicine, New York University Medical Center, 400 East 34th Street, New York, NY 10017, 1970.

S-388 Saltman, Jules. PARAPLEGIA: A HEAD, A HEART, AND TWO BIG WHEELS, Public Affairs Committee, Inc., 381 Park Avenue, South, New York 10016, November, 1965.

S-942 WHAT YOU SHOULD KNOW ABOUT PARAPLEGIA, U.S. Dept. of Health, Education and Welfare, Social and Rehabilitation Services, Washington, D.C. 20201, no date.

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VOCATIONAL EDUCATION RESOURCE MATERIALS COLLECTION AND FREE LOAN SYSTEM

PURPOSE-The Vocational Education Resource Materials Collection, housed in the IMC at the Teacher Education Building, University of Wisconsin-Madison, has been designed to encourage and support curriculum development and instructional activities in vocational education through identification of resources and materials which may be of use to educators.

AREAS -In addition to the Handicapped and Special Education Bibliography, bibliographies exist for each of the following vocational education areas: 1) Agriculture, 2) Business Education, 3) Career Education, 4) Distributive Education, 5) Health Occupations, 6) Home Economics, 7) Industrial Education, and 8) Research and Development. Bibliographies for each of the vocational education areas are available on request. *Materials are available for free loan to vocational educators and others in Wisconsin.*

USES -Potential uses for materials include workshops, student and teacher references, curriculum aids, undergrauate and graduate student references, administrative planning, and examination for purchase. You may have additional uses.

LOAN PROCEDURE-An order form is printed below. If you wish to borrow any of the materials listed in the bibliography of this publication or would like a copy of the bibliographies in any of the vocational education areas listed above, simply make your request below. Clip or duplicate and mail the order form. Requests will be filled by mail on a first-come-first-served basis. In addition to mail requests, materials are available for examination and loan at the School of Education, IMC, located in the Teacher Education Building, 225 North Mills Street, Madison, Wisconsin 53706.

PLEASE PRINT OR TYPE

YOUR NAME_____ DATE_____
(Last) (First)

SCHOOL OR AGENCY_____

ADDRESS_____

CITY & STATE_____ ZIP_____

PHONE_____ DATES WANTED

_____through_____

ITEM ORDER NUMBERS_____ _____ _____

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BIBLIOGRAPHIES REQUESTED_____

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The Wisconsin Vocational Studies Center at the University of Wisconsin-Madison was reorganized with the support of the Wisconsin Board of Vocational, Technical and Adult Education within the School of Education in 1971. The function of the Center is to serve the State of Wisconsin in a unique way by bringing the resources of the University to bear on identified problems in the delivery of vocational and manpower programs—vocational education, technical education, adult education, career education, manpower training—to citizens of all ages in all communities of the State. The Center focuses upon the delivery of services including analyses of need, target groups served, institutional organization, instructional and curriculum methodology and content, labor market needs, manpower policy, and other appropriate factors. To the extent that these goals are enhanced and the foci of problems widened to encompass regional and national concerns, the Center engages in studies beyond the boundaries of the State.

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